UNIVERSITY OF GUELPH
College of Management and Economics
Department of Economics and Finance

ECON*4700: Advanced Mathematical Economics
ECON*6060: Mathematical Methods for Economics

Fall 2012

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Lectures: T, Th, 11:30 – 12:50, MACK 317
Lab: W, 2:30 – 3:20, MACK 316
Office hours: T, Th, 2:30 – 4:00, or by appointment.

Course outline

Description: This is an advanced undergraduate course in mathematical economics, with selected applications. The first six weeks focuses on techniques with some familiar economic applications. The second part of the course studies topics in contracts, incentives and the functioning of labour markets with uncertainty. The first six weeks is a combined course with ECON*4700 and ECON*6060. The second part of the course is for ECON*4700 only.

Main text: Hoy, M., J. Livernois, C. McKenna, R. Rees, and T. Stengos,, *Mathematics for Economics*, MIT Press, 3rd Edition. [Hoy]

There is also a Student Solutions Manual, which is available as an e-book via the MIT Press website, or in hard copy at the bookstore and Amazon.ca. Supplemental material is available at the book's website: http://mitpress.mit.edu/math_econ3/

Other texts: Macho-Stadler, I. and J.D. Pérez-Castrillo, *An Introduction to the Economics of Information*, Oxford University Press, 2nd Edition. [MP]

Pissarides, C.A., *Equilibrium Unemployment Theory*, MIT Press, 2nd Edition. [CP]

All texts are on reserve in the University Library.

On-line resources: All course material, including lecture PPTs, will be posted on Courselink.

Evaluation (4700):   There will be two in-class **midterm exams** (worth 30% each) scheduled for Thursday, 4 October and Tuesday, 6 November. The **final exam** (40%) is scheduled for Monday, 3 December, 19:00 – 21:00, location TBA.

Evaluation (6060):   There will be one final examination, which will be pass/fail, date TBA during Week 7.

Feedback: You will be asked to complete an evaluation of this course at some time during the last two weeks of the semester. The Department of Economics policy regarding the conduct and use of these evaluations will be found at:

http://www.uoguelph.ca/economics/academics/courses/course-evaluation

Student responsibilities: You should be aware of your responsibilities regarding University policies on academic misconduct, drop dates, email communication and course requirements. You are advised to visit:

http://www.uoguelph.ca/economics/node/1115

Course content

Week 0 (First class meeting, 6 September): Course overview.

Week 1 & 2:   Review of calculus and optimization of multivariate functions. Hoy Chs 11, 12 & 13.

Week 3:   Comparative statics. Hoy Ch 14.

Week 4:   Integration. Hoy Ch 16.

Weeks 5 & 6:   Dynamics – continuous-time models. Hoy Chs 17, 21, 22.

Week 7:   Modeling uncertainty. MP Chs 1 & 2.

Week 8:   Moral hazard. MP Ch 3.

Week 9:   Adverse selection. MP Ch 4.

Week 10:   Unemployment and job creation. CP Ch 1.

Week 11:   Unemployment and job destruction. CP Ch 2.

Week 12:   Labour turnover. CP Ch 4.

Additional readings for weeks 7 through 12 will be given in class.